

CLAIMS

1. A synchronous induction motor comprising:

a stator having a main winding and an auxiliary winding;

5 a rotor having a yoke, a permanent magnet embedded in the yoke
and a secondary conductor provided in a vicinity of a periphery of the
yoke,

and

a starter having a starting capacitor connected in series with the
10 auxiliary winding, and a switching unit that closes a circuit to the auxiliary
winding from the starting capacitor when the synchronous induction motor is
at rest, and opens the circuit after the synchronous induction motor is
started,

15 2. The synchronous induction motor according to claim 1, wherein the
switching unit has a triac connected in series with the circuit and a trigger
circuit to control the triac.

3. The synchronous induction motor according to claim 1, wherein the
20 switching unit has a bimetal switch connected in series with the circuit and a
heating element connected in parallel with the bimetal switch to give thermal
effects on the bimetal switch.

4. The synchronous induction motor according to claim 3, wherein the
25 heating element has one of a positive temperature coefficient thermistor and
a heater.

5. The synchronous induction motor according to claim 1, wherein the switching unit is a current relay having a coil connected in series with the main winding, a movable contact driven by the coil, and a fixed contact connected in series with the circuit to attach the fixed contact.

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6. The synchronous induction motor according to claim 5, wherein the current relay further has a plunger incorporated with the movable contact, and the current relay moves the plunger in the direction against gravitation by the coil to close the circuit when the motor is at start, and opens the circuit
10 by gravitational forces on the plunger after the motor is started.

7. The synchronous induction motor according to claim 1, wherein the switching unit is a voltage relay having a coil connected in parallel with the auxiliary winding, a movable contact driven by the coil, and a fixed contact
15 connected in series with the circuit to attach the fixed contact.

8. The synchronous induction motor according to one of claim 2, 3 and 5, wherein the starter further has a positive temperature coefficient thermistor connected in series with the circuit, and the switching unit cuts off
20 current flowing into the positive temperature coefficient thermistor after the motor is started.

9. An electric hermetic compressor comprising:

a hermetic housing;

25 a synchronous induction motor provided in the hermetic housing, the synchronous induction motor having;

a stator with a main winding and an auxiliary winding; and

a rotor having a yoke, a permanent magnet embedded in the yoke and a secondary conductor provided in a vicinity of a periphery of the permanent magnet,

a starter having a starting capacitor connected in series with the
5 auxiliary winding and a switching unit that closes the circuit to the auxiliary winding from the starting capacitor when the synchronous induction motor is at rest, and opens the circuit after the synchronous induction motor is started; and

a compression unit driven by the synchronous induction motor.

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10. The electric hermetic compressor according to claim 9, wherein the switching unit has a triac connected in series with the circuit and a trigger circuit to control the triac.

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11. The electric hermetic compressor according to claim 9, wherein the switching unit has a bimetal switch connected in series with the circuit and a heating element connected in parallel with the bimetal switch to give thermal effects on the bimetal switch.

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12. The electric hermetic compressor according to claim 11, wherein the heating element has one of a positive temperature coefficient thermistor and a heater.

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13. The electric hermetic compressor according to claim 9, wherein the switching unit is a current relay having a coil connected in series with the main winding, a movable contact driven by the coil, and a fixed contact connected in series with the circuit to attach the fixed contact.

14. The electric hermetic compressor according to claim 13, wherein the current relay further has a plunger incorporated with the movable contact, and the current relay moves the plunger in the direction against gravitation by the coil to close the circuit when the motor is at start, and
5 opens the circuit by gravitational forces on the plunger after the motor is started.

15. The electric hermetic compressor according to claim 9, wherein the
10 switching unit is a voltage relay having a coil connected in parallel with the auxiliary winding, a movable contact driven by the coil, and a fixed contact connected in series with the circuit to attach the fixed contact.

16. The electric hermetic compressor according to one of claims 10, 11,
15 and 13, wherein the starter further has a positive temperature coefficient thermistor connected in series with the circuit, and the switching unit cuts off current flowing into the positive temperature coefficient thermistor after the motor is started.